



# Lockout / Tagout Program (Control of Hazardous Energy)

**2008**

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## DEPARTMENT OF ADMINISTRATIVE SERVICES

### **LOCKOUT/TAGOUT PROGRAM – 1910.147 “THE CONTROL OF HAZARDOUS ENERGY”**

#### **General Statement**

Lockout is the preferred method of isolating machines and equipment from energy sources. The following procedures will be used when there are a limited number of types of machines or equipment, or there is a single power source. For more complex systems, a more comprehensive procedure will be developed, documented and utilized.

#### **Purpose**

This procedure will establish the requirements for the Lockout or Tagout of energy isolating devices. It shall be used to insure that the machine or equipment is locked out, or tagged out before employees perform any servicing or maintenance activities here unexpected energization, start-up, or release of stored energy could cause injury.

Types and magnitude of energy hazards to include but not limited to:

1. Electrical energy
2. Steam pressure
3. Water pressure
4. Gas pressure and explosion hazard
5. Air pressure
6. Hot water (thermal hazard)
7. Spring pressure (tension)
8. Hydraulic pressure
9. Oil pressure (pressurized fuel systems)
10. Kinetic

#### **Terms**

##### **Affected Employee**

An employee whose job requires them to operate or use a machine or piece of equipment on which servicing is being performed under lockout or tagout, or whose job requires them to work in an area in which such servicing or maintenance is being performed.

##### **Authorized Employee**

A person who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing maintenance or service on a machine or piece of equipment which must be locked, or a tagout system implemented. Energy Source:

Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

**Lockout**

The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy- isolating device and the equipment being controlled cannot be operated until the lockout device is removed. Lockout Device: A device that utilizes a positive means, such as a lock, to hold an energy-isolating device in the safe position and prevent the energizing of a machine or piece of equipment.

**Normal Production Operations**

The utilization of a machine or piece of equipment to perform its intended production function.

**Primary Authorized Employee**

The authorized employee who has been vested with responsibility for a set number or group of employees performing service or maintenance on machines or equipment subject to lockout or tagout procedures.

**Servicing and/or Maintenance** Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes where the employee may be exposed to the unexpected energization or start-up of the equipment or release of hazardous energy.

**Tagout**

The placement of a tagout device on an energy- isolating device, in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

**Responsibility**

The following classifications (where applicable) will be responsible for implementing and utilizing the Lockout/Tagout Program when performing service or maintenance on machinery or equipment where unexpected re-energizing start-up, or release of stored energy could cause injury while employed with the Department of Administrative Services.

Employees shall include, but are not limited to:

1. Administrative Assistants
2. Architectural Technicians
3. Automotive Mechanics
4. Carpenters
5. Communication Technicians
6. Custodians

7. Electricians
8. Electronic Engineers
9. Locksmith
10. Mail Clerks
11. Maintenance Workers
12. Microfilm Operators
13. Nursery Workers
14. Power Plant Engineers
15. Program Planners
16. Reproduction Equipment Operators
17. Storekeepers
18. Warehouse Workers

## Designated Point of Contact

The following work unit supervisor (s) are designated as the point of contact for Lockout/Tagout issues within their designated division, and may be reached by calling the individual, or by contacting Department of Administrative Services Service Center at (515) 242-5120.

1. Electrical	Mechanical & Electrical Supervisor	242-5123
2. Mechanical Automation	Mechanical & Electrical Supervisor	242-5123
3. Construction	Construction & Grounds Supervisor	281-6067
4. Grounds Maintenance	Construction & Grounds Supervisor	281-6067
5. Custodial	<u>East Supervisor</u>	242-1657
	(Hoover, Lucas, Grimes, IWD – 1000 Grand, DPS, FMC, Monuments & Benches)	
	<u>West Supervisor</u>	281-6290
	(Capitol, Miller, IWD – 150 DM & 430 Grand, Wallace, Historical, Vehicle Dispatch, 2015 Grand)	
	<u>Ankeny Labs Supervisor</u>	725-1451
6. Fleet	Fleet Supervisor	281-3162
7. Mail	Mail Supervisor	281-5143
8. Purchasing	Purchasing Administrator	281-8384
9. Architecture & Engineering	A&E Administrator	281-3101
10. Printing	Printing Supervisor	281-5050

## Those Authorized to Implement Lockout/Tagout Procedures

1. Division Administrators
2. Supervisors
3. Lead Workers
4. Employees who normally work on equipment, and have been properly trained
5. Safety Officer

## Notification Prior To Implementing Work Requiring Lockout/Tagout Procedures

1. All affected employees and supervisors in the area where work is being performed will be notified by the employee applying the lockout or tagout device (s). Notification will be given before the control device(s) are applied and proper notification (including verbal) will be provided before any control device(s) are removed from machine and/or equipment.
2. Before an employee turns off a machine or a piece of equipment, the employee shall be knowledgeable of the types and magnitude of the energy, the hazard of the energy to be controlled, and the methods or means to control the energy.
3. Before any piece of machinery and or equipment is locked out or tagged out, the person(s) shall make a verbal notification as an added precaution to affected employees within the designated work unit. This process shall also be repeated prior to placing the piece of machinery and/or equipment back into operation.

## Preparation for Lockout or Tagout

It will be the responsibility of each division in the Department of Administrative Services to survey, locate and, identify all isolating devices to be certain which switches, valves, or other energy isolating devices apply to the equipment to be locked or tagged out. More than one energy source (electrical, mechanical, or others) may be involved.

### Examples to consider:

1. Electrical Fused Disconnect  
Near machinery or equipment.
2. Electric Power  
Fuse or circuit breaker type in electrical closet for these spaces
3. Steam Pressure  
Valves near machinery or equipment to be locked out.
4. Gas Pressure  
Valve near the equipment or machinery utilizing the gas.

5. Air Pressure  
Valves near or remote from the work area.
6. Hot Water  
Valves near or remote from the work area.
7. Spring  
Discharge springs or block device so that it cannot function
8. Hydraulic Pressure  
Isolate controls so that machine or equipment cannot function. Lower all hydraulic devices to the “O” position (rams, jacks, etc.,)
9. Oil Pressure  
Valves near machinery or equipment using the fuel oil
10. Pneumatic  
Any Stored Energy

## Sequence of Lockout or Tagout System Procedure

1. Notify all affected employees that a lockout/tagout system is going to be utilized and the reason therefore. The authorized employee shall know the type and magnitude of the energy that the machine or equipment utilizes and hazards thereof.
2. Before any piece of machinery and or equipment is locked/tagged, the person (s) shall make a verbal notification as an added precaution to affected employees within the designated work unit. This process shall also be repeated prior to placing the piece of machinery and/or equipment back into operation.
3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop switch, open toggle switch, etc.,)
4. Operate the switch, valve, or other energy isolating devices so that the equipment is isolated from its energy sources.

Types of stored energy methods to dissipate or restrain:

- A. Springs: Discharge springs to “0” tension or block machine or equipment so it cannot function.
- B. Hydraulic pressure – Return all hydraulic devices to “0”
- C. Electrical capacitors – Short terminals to discharge energy.

5. Lockout and/or tagout the energy isolating devices with assigned individual locks or tag methods selected, i.e., Locks, tags, additional safety measures, etc.
6. After performing lockout/tagout stored energy (especially in areas where springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, are involved), it is important to remember they must be dissipated or restrained by methods such as repositioning blocking, bleeding down, etc.
7. After insuring that no personnel are exposed and to insure energy sources have been disconnected, operate the push button or other normal operating controls to make certain the equipment will not operate.

Some examples to check to insure disconnection has been successful:

- A. Start/Stop devices
- B. Electrical fuse disconnects
- C. Circuit breakers
- D. Valves
- E. Springs are discharged
- F. All hydraulic equipment is at “0” position

**CAUTION: Return operating control to the “NEUTRAL” or “off” position after test.**

8. Only after the successful disconnection/control of the stored energy source has been made should it be considered locked out or tagged out.

## Tagout Procedures

When de-energizing cannot be accompanied by lockout, a tagout procedure may be utilized. Tags are essentially warning devices affixed to energy isolating devices, but do not provide the physical restraint on those devices that is provided by a lock.

When tags are used instead of locks, the following must be complied with:

1. Tags cannot be removed without authorization of the authorized person responsible for it, and is never to be bypassed, ignored or otherwise defeated.
2. Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.
3. Tags and their means of attachment must be made of material which will withstand the environmental conditions encountered in the workplace.
4. Tags must be securely attached to energy isolating devices so they cannot inadvertently or accidentally be detached during use.



## Exception to Lockout Procedure

Exception to Lockout procedures are acceptable when:

Minor tool changes and adjustments, and other minor servicing activities which take place during normal operations maybe exempt.

A general rule to consider for exceptions is:

If the changes are routine, repetitive and integral, and provided the work is performed using alternative measures which provide effective protection, then, and only then, will it be considered exempt. \* In addition, any exception noted must be approved prior to implementation by the division team leader.

However, at anytime when a form of a protective device or a guard is removed, or an employee is exposed to the point of operation, the lockout / tagout procedure will be used.

## Procedure Involving More Than One Person

In the preceding steps, if more than one individual is required to Lockout or tagout equipment, each shall place his/her own personal lockout device or tagout device on the energy isolating devices. When an energy isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used. If lockout is used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet, which allows the use of multiple locks to secure it. As each person no longer needs to maintain his/her own lock to secure the cabinet. As each person no longer needs to maintain his or her lockout protection that person will remove his/her lock from the box or cabinet.

## Shift and Personnel Changes

The employee originating the Lockout/tagout procedure or the coordinator of the group lockout or tagout will be responsible for orderly transfer of lockout or tagout will be responsible for the orderly transfer of lockout or tagout devices between off-going and on-going employees to minimize exposure to hazards from the unexpected energization, start-up of the machine or equipment or release of stored energy.

## Restoring Machines or Equipment to Normal Operations

1. After the servicing and/or maintenance is complete and equipment is ready for normal operations, check the area around the machines or equipment to insure no one is exposed.
2. After all tools have been removed from the machine or equipment guards have been re-installed, and employees are in the clear, remove all lockout or tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment.

3. Before returning any piece of machinery and or equipment to operation, the authorized person (s) removing the lockout/tagout devices will make a verbal notification as an added precaution to affected employees within the designated work unit.

## Exception to Normal Removal of LOTO Locks

When the authorized employee who applied the energy isolating device is not available and the determination is made to restore the equipment to normal operation, the device may be removed by a properly trained, designated employee under the authorization and direction of the Tim Ryburn or Ken Thornton. Tim or Ken must confirm the authorized employee who applied the lockout/tagout device is not available or not at work and must make a reasonable effort to contact the authorized employee to inform him/her that the lockout/tagout device has been removed. The minimum requirement will be to ensure the authorized employee has been informed of the removal of the lockout/tagout device. After every attempt has been made to contact the authorized employee, the lockout/tagout device may be removed only by cutting the device.

NOTE: Documentation of this event must be made using the "Exception to Normal Removal of LOTO Devices" form. Copies of this form must be kept in division/work unit office with a copy sent to the DAS / GSE Safety Office.

After removal of the lockout/tagout device, it is imperative that the sequence required for safe and orderly release be followed completely.

## Training

All new and/or transferred employee(s) affected by the lockout/tagout program will be instructed in the purpose and use of the lockout or tagout procedure. Initial training will be conducted and consist of a complete interpretation of the written program and the review of a video tape summarizing proper procedures and methods applicable to lockout/tagout.

### **Retraining will be conducted when:**

1. Change in machines, equipment or process that present new hazard, or when there is a change in the energy control procedures.
2. An inspection of this procedure reveals that there are deviations or inadequacies in the employee's knowledge in the use of the control procedures.

## Basic Rules.

In general, before service or maintenance is performed on machines or equipment the machines or equipment must be turned off and disconnected from energy source, and the energy isolating device must be either locked or tagged out.

## Notification to Vendor's, Contractors and Monitoring Services

Vendor (s) and/or Contractors performing work on site will need to receive proper instructions and procedures concerning the DAS lockout/tagout program to insure their safety as well as others.

In addition, when applicable, proper notification will be provided to monitoring services such as ITS, Post 16, and/or DAS Customer Service Center when the lockout/tagout of equipment or machinery will directly effect their ability to effectively monitor conditions.

This responsibility falls upon each division and team leader within the organization to insure their team(s) provide contractors working directly for them with this information.

Another good way to provide information to vendor(s) and/or Contractors is during the bidding or by conducting a pre-bid meeting.

## Disciplinary Action

Any employee, upon completion of training, who fails to comply with, all facets of this program, may be subject to disciplinary action in accordance with the Work Rules, Department of Administrative Services, Section 3.

## Equipment List for Lockout/Tagout

Lockout/Tagout procedures will be printed out with each work order.

Any work order that does not have the procedure on it will require that the employee doing the work on the assigned piece of equipment will need to write a procedure for the piece of equipment he/she is working on, and have his/her supervisor read and OK the lockout/tagout procedure before the employee starts to work on the piece of equipment.

Forms for writing a procedure are available from his/her supervisor.  
Or may be copied from Index R of this program.

## **EQUIPMENT LIST**

Lockout Points					
Hazard	Action Required	Lock#	Name	Locks On	Locks Off

<b>Group Lockout</b>			
<b>Group Lockout Leader:</b> _____ Employees Operating Under a Group Lockout: _____			

Lock Number	Name	Date Affixed	Date Removed

<b><u>Periodic Inspection Section</u></b>	
<b>Inspection Performed By:</b> _____ <b>Date:</b> _____	
<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modification	

## LOCKOUT PROCEDURE & WORK PLAN

Equipment: \_\_\_\_\_ Location: \_\_\_\_\_

Work Scope: \_\_\_\_\_

Contact Person: \_\_\_\_\_

### **Energy/Flow to be Controlled (Cross off those that DO NOT Apply)**

Steam	Natural Gas	Moving Parts	Chemicals
Electric Power	Compressed Air	Pneumatic	_____
Control Power	Water	Hydraulic	_____

### **Lockout Checklist**

- ☐ Review procedure or complete a Lockout/Procedure/Work Plan
- ☐ Identify all energy sources
- ☐ Notify affected employees
- ☐ Shut down the equipment
- ☐ Isolate the equipment
- ☐ Apply lockout devices
- ☐ Reduce equipment to zero energy state.
- ☐ Verify equipment isolation.
- ☐ Perform task.
- ☐ Return equipment to Service.

### **Lockout Points**

Hazard	Action Required	Lock#	Name	Locks On	Locks Off

## Exception to Normal Removal of LOTO Locks – FORM

Each lockout/tagout device shall be removed from each energy isolating device by the employee who applied the device.

When the authorized employee who applied the lockout/tagout device is not available to remove it, that device may be removed under the direction of Tim Ryburn or Ken Thornton, provided that these specific procedures are followed.

1. Verify that the authorized employee who applied the device is not at the facility:

- Name of employee\_\_\_\_\_
- Date of Lock Removal\_\_\_\_\_
- Assure authorized employee is not available:
  - i. Call on cell phone:        yes\_\_\_ no\_\_\_
  - ii. Check with manager to check attendance:        yes\_\_\_ no\_\_\_

2. Make a reasonable effort to contact the authorized employee to inform him/her that his/her lockout/tagout device is being removed.

- Call employee's home:    yes\_\_\_ no\_\_\_

3. Verify/review LOTO procedures documented in authorized employee's Logbook, assuring equipment is ready to come back online.

- yes\_\_\_    no\_\_\_

Signature required before cutting locks/tag with bolt cutter:

Signature of Tim Ryburn or Ken Thornton: \_\_\_\_\_

4. Ensure that the authorized employee has the knowledge that his/her locks and tags have been removed before he/she resumes work at that facility.

- yes\_\_\_    no\_\_\_

Signature of Tim Ryburn or Ken Thornton: \_\_\_\_\_